

**CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:**

1. A method of forming a portion of magnetic core from a plurality of magnetic ribbons using a former having an electrically conductive coil located about the former, the former defining an opening in the electrically conductive coil, the method consists of the steps:

- a) locating a first end of a stack of magnetic ribbon material substantially within the opening of the electrically conductive coil,
- b) locating the free end of said stack of ribbon material opposite said first end within the opening of the electrically conductive coil; and
- c) applying electric energy to said electrically conductive coil, so as to produce an electromotive force that draws the ends of said magnetic ribbon material towards each other.

10 15 2. A method according to claim 1 including the further steps:

- d) repeating steps a) and b) with a further stack of magnetic ribbon material.

15 3. A method according to claim 1 wherein a step prior to step a) consists of:

20 e) pre-forming a magnetic ribbon material to a length that allows the ends of each ribbon to be located opposite one another when those ends are located adjacent each other in the opening of the coil, to thereby form a non-continuous loop of ribbon material.

25 4. A method according to claim 1 wherein a step prior to step a) consists of:

- f) pre-forming a stack of ribbons of magnetic ribbon material to a predetermined shape that allows the ends of the stack to be located opposite one another when those ends are located adjacent each other in the opening of the coil, to thereby form a non-continuous loop of stacked ribbon material of substantially uniform thickness.

5. A method according to claim 1 wherein the electrically conductive coil includes a single coil of wire looped multiple times about the former.

6. A method according to claim 1 wherein the former is non-conductive and  
5 non-magnetic.

7. A method according to claim 1 wherein at least one spacer used with the former is sized so as to create a predetermined gap between opposite ends of the stack of ribbon material when located in the opening after step c).

10 8. A method according to claim 7 wherein the spacer is non-conductive and non-magnetic.

15 9. A method according to claim 8 wherein the spacer is cruciform shaped in cross-section.

10. A method according to claim 1 wherein each spacer is non-conductive and non-magnetic.

20 11. A method according to claim 1 further including the step of:  
g) annealing the coil formed out of the stack of magnetic ribbons.

12. The method of claim 1 wherein the application of electric energy is achieved by discharging an electrical charge storage device for a predetermined period at least  
25 a predetermined number of times into the coil.

13. The method according to claim 12 wherein the electrical charge discharge is at least twice as great as the current level usable by the device created by the method.

14. The method according to claim 12 wherein the predetermined period is between 1 and 10 milliseconds.

15. The method according to claim 12 wherein the predetermined number of 5 times is between 1 and 4.

16. A method according to any preceding claim wherein each ribbon in a stack of ribbon material is amorphous magnetic material.

10 17. A method for testing for the completion of the assembly of a magnetic core consisting of one or more magnetic ribbons comprises the steps of:

- 15 h) measuring one or more electromagnetic characteristics including the instantaneous value of core current and voltage during the process of forming said core according to the method of claim 1;
- i) comparing a said characteristic with a predetermined value;
- j) continuing steps h) and i) until the comparison falls within a predetermined range.

18. A method for testing in accordance with claim 16 wherein other 20 electromagnetic characteristics include one or more of the following: flux linkage, inductance.

19. Magnetic ballast consisting of:  
25 a former having an electrically conductive coil about the former, the former defining an opening in the electrically conductive coil;  
one or more non-magnetic and non-conductive spacers located within the opening;  
30 a first stack of magnetic ribbon material having one end of the first stack located within the opening of the electrically conductive coil and the other end of the first stack located within the opening of the electrically conductive coil, the other end

being opposite the one end of the first stack and the or each spacer spacing apart one or more opposite ends of the magnetic ribbon material forming the first stack; and

5 a second stack of magnetic ribbon material having one end of the second stack located within the opening of the electrically conductive coil and the other end of the second stack located within the opening of the electrically conductive coil opposite the one end of the second stack and the or each spacer spacing apart one or more of opposite ends of the magnetic ribbon material forming the second stack.

20. Magnetic ballast according to claim 19 wherein each ribbon in a stack of

10 ribbon material is amorphous magnetic material.

21. Magnetic ballast according to claim 19 wherein the electrically conductive coil includes a single wire looped multiple times about the former.

15 22. Magnetic ballast according to claim 19 wherein the former is non-conductive and non-magnetic.

20 23. Magnetic ballast according to claim 19 wherein the spacer is sized to create a predetermined gap between opposite ends of the same stack of magnetic ribbon material.

25 24. Magnetic ballast according to claim 19 wherein the spacer is non-conductive and non-magnetic.

30 25. Magnetic ballast made according to any preceding method claim 1 to 15.